

## CLAIMS

1           1. A system for software maintenance of a wireless Internet access device,  
2 said system comprising:  
3                 (a) an access point device for making a wireless connection between a mobile  
4 computer and a communications network, said device including  
5                     (i) a memory containing first device management software for providing a  
6 device management function; and  
7                     (ii) loading apparatus for loading second software through said network for  
8 replacing said first software.

1           2. A system as recited in claim 1 further comprising a server including  
2 apparatus for receiving data input from a computer for installation and storing said second  
3 software for said loading by said loading apparatus through said network.  
4  
1           3. A system as recited in claim 2 wherein said device further includes version  
2 checker apparatus for checking a version of said second software, and wherein said loading  
3 apparatus loads said second software if a version of said second software is different from a  
4 version of said first software.

1           4. A system as recited in claim 3 further comprising first authentication  
2 apparatus for authenticating an identity of said server to said device.

1           5. A system as recited in claim 4 further comprising second authentication  
2 apparatus for authenticating an identity of said device to said server.

1           6. A system as recited in claim 3 further comprising automatic apparatus for  
2 automatically performing said checking and said loading at a preset time.

1           7. A system as recited in claim 6 further comprising shut-down apparatus for  
2 stopping an acceptance of new connections prior to said loading.

1           8. A system as recited in claim 1 wherein said loading is performed  
2 automatically at a preset time.

1           9. A method of maintaining software on a wireless network access device,  
2 said method comprising:

3           (a) first storing a first device management software in a memory in said  
4 device; and

5           (b) loading a second device management software through said network for  
6 replacing said first software.

1           10. A method as recited in claim 9 further comprising inputting upgrade data  
2 to a server from a computer, said data for installing and storing said second device management  
3 software in said server.

1           11. A method as recited in claim 10 further comprising checking a version of  
2 said second software, and wherein said loading is performed if said second software is a different  
3 version from said first software.

1           12. A method as recited in claim 11 further comprising first authenticating an  
2 identity of said server to said device.

1           13. A method as recited in claim 12 further comprising second authenticating  
2 an identity of said device to said server.

1           14. A method as recited in claim 11 further comprising automatically  
2 performing said checking and said loading at a preset time.

1           15. A method as recited in claim 14 further comprising stopping an  
2 acceptance of a new connection prior to said loading.

1           16. A method as recited in claim 9 further comprising automatically  
2 performing said loading at a preset time.

1           17. A system providing Internet access comprising:

2           (a) an access point device for making a wireless connection between a mobile  
3 user and a source network, said access point device including  
4           (i) first device management software for providing a device  
5 management function;

6           (ii) access device loading apparatus for loading second device  
7 management software through a network for replacing said first software;

8           (b) authorization server apparatus for authorizing a mobile user to access the  
9 Internet through said access point device and said source network; and

10           (c) remote maintenance server apparatus including apparatus for receiving  
11 and storing an upgrade to said first software from a network connected computer for creation of  
12 said second software, and for facilitating said loading in cooperation with said access point  
13 device.

1           18. A system as recited in claim 17 wherein said authorization server  
2 apparatus includes

3           (a) source network server apparatus including apparatus for receiving a  
4 request from said mobile user to access said Internet, and for determining  
5 if said mobile user is currently authorized to access the Internet, and if so

6 to allow said authorized mobile user said access, and if not to forward said  
7 request;

8 (b) redirection server apparatus for receiving from said source server said  
9 forwarded request by said unauthorized mobile user for Internet access,  
10 and for redirecting said request ; and

11 (c) authentication server apparatus for receiving said unauthorized user's  
12 request from said redirection server, and for authorizing said unauthorized mobile user to access  
13 said Internet; and

14 (d) gate keeper server apparatus for receiving an authorization from said  
15 authentication server and for informing said source network apparatus that said mobile user is to  
16 be allowed access to said Internet.

1 19. A system as recited in claim 17 wherein said access point device further  
2 includes version checker apparatus for checking a version of said second software, and wherein  
3 said loading apparatus loads said second software if a version of said second software is different  
4 from a version of said first software.

1 20. A system as recited in claim 19 further comprising first authentication  
2 apparatus for authenticating an identity of said remote maintenance server to said access point  
3 device.

1 21. A system as recited in claim 20 further comprising second authentication  
2 apparatus for authenticating an identity of said access point device to said remote maintenance  
3 server.

1 22. A system as recited in claim 19 further comprising apparatus for  
2 automatically performing said checking and said loading at a preset time.

1           23. A system as recited in claim 22 further comprising shut-down apparatus  
2 for stopping an acceptance of new connections prior to said loading.

1           24. A system as recited in claim 17 wherein said loading is performed  
2 automatically at a preset time.